

evidently a much larger fish than its Atlantic congener. Precisely similar differences are exhibited by the purses of *Chimara monstrosa* and its larger Pacific representative *C. phantasma*, while the same comparison may be made between a pair of purses, 128 mm. long, which we refer to *C. mirabilis* and the purses of the Pacific *C. mitsukurii*.

Nesiarchus nasutus, Johnson.

A specimen, 730 mm. long, S. R. 593.

Previously known from the coasts of Madeira and Portugal.

Hoplostethus atlanticus, Collett.

Several, of which the largest are massive individuals measuring 610 mm., S. R. 592, 6/8/08, 50° 39' N., 11° 25' W., 400-510 fathoms, and S. R. 593.

We are indebted to Mr. Regan for the determination.

Previously known from the Azores and Cape of Good Hope.

Serrivomer beani, Gill and Ryder.

A mangled fish, from S. R. 593, seems to be referable to this species, which has a wide distribution at suitable depths in the North Atlantic.

XXXVI.—*New African Phlebotomic Diptera in the British Museum (Natural History)*.—Part VI. By ERNEST E. AUSTEN*.

Chironomidæ.

CERATOPOGONINÆ.

Genus CULICOIDES, Latr.†

Culicoides grahamii, sp. n.

♀.—Length (13 specimens), inclusive of head, 1 mm. to just over 1 mm.; length of wing 1 mm.

* For Parts I.-V. see Ann. & Mag. Nat. Hist. ser. 8, vol. i. pp. 209-228 and 401-428, and vol. ii. pp. 94-116, 274-301, and 352-356.

† Coloured figures of the three species of this genus described below will appear shortly in an official volume, entitled 'Illustrations of African Blood-sucking Flies,' with notes by the author.

Colour of body (in dried specimens) mouse-grey* ; wings light sepia-coloured, with three large clear spots on costal margin (distal spot close to tip of wing, above end of upper branch of fourth longitudinal vein), and two less sharply defined pale spots on hind margin, one within fork of fifth longitudinal vein, the other in anal angle ; in middle of costal margin is a conspicuous clove-brown elongate blotch, covering distal third of first longitudinal and greater part of third longitudinal veins, while on basal third of costal margin is an elongate dark blotch of less intensity ; the two distal clear spots are separated by a moderately dark quadrate blotch ; head large, prominent, not bent down beneath anterior portion of thorax ; tibiæ with a conspicuous pale band at base.

Head: palpi sepia-coloured ; first joint of antennæ dark brown, flagellum sepia-coloured, clothed with pale hairs. Thorax: dorsum clothed with scattered yellowish hairs. Abdomen clothed with brownish hair. Wings: upper portion of distal extremity, above upper branch of fourth longitudinal vein, clothed with scattered and minute black hairs ; third longitudinal vein connected with first longitudinal by a cross-vein, fourth longitudinal vein bifurcating a little before middle of wing. Halteres straw-yellow, knobs large, elliptical. Legs sepia-coloured, clothed with pale yellowish hairs, tibiæ with a narrow cream-coloured band at base, hind tibiæ also with a similar band at tip.

Ashanti, Southern Nigeria, Congo Free State, Uganda : type and three other specimens from Obuasi, Ashanti, 17. xi. 1907, " caught on the arm of a European " (Dr. W. M. Graham) ; additional material from Forcados, S. Nigeria, May 1908 (G. C. Dudgeon), Cross River, S. Nigeria, 1906 (Dr. R. W. Gray), Binza, a small village near Leopoldville, Congo Free State, 13. xii. 1903 (the late Dr. J. E. Dutton and Drs. J. L. Todd and Cuthbert Christy), and Bwamba Country, Semliki Valley, S.-W. Uganda, 2700 ft., " in forest," 1905 (M. T. Dawe).

This tiny midge, which is evidently very widely distributed in Tropical Africa, would appear to be the African representative of the equally bloodthirsty *Culicoides varius*, Winn., of Europe ; the wing-markings of the two species are identical, but *C. grahamii* can at once be distinguished by its much smaller size, paler antennæ, and much more conspicuous pale bands on the tibiæ : British specimens of *C. varius* exhibit nothing more than faint indications of pale tibial bands.

* For names and illustrations of colours, see Ridgway, 'A Nomenclature of Colors for Naturalists' (Boston: Little, Brown, and Company, 1886).

Notes supplied by collectors show that *C. grahamii* is a troublesome pest, its bites, like those of other midges, producing irritating wheals on the skin: fuller information will be given in the author's forthcoming work on 'African Blood-sucking Flies.'

Culicoides brucei, sp. n.

♀.—Length (3 specimens), exclusive of head, 1 to 1.6 mm.; length of wing 1.5 mm.

Colour of body (in dried specimens) mouse-grey or olive-brown, with more or less distinct dark brown longitudinal markings on dorsum of thorax; head small, in dried specimens bent downwards beneath anterior portion of thorax, so as to be invisible from above; wings yellowish, semitransparent, sparsely clothed with minute brownish hairs, and spotted and blotched with dark brown and mouse-grey, branches of fourth and fifth longitudinal veins also bordered more or less with mouse-grey.

Head: palpi dark brown; basal joints of antennæ dark brown. *Thorax*: dorsum in some specimens in front with a median dark brown mark, and a little further back a pair of dark brown admedian stripes extending somewhat beyond middle of dorsum; behind posterior ends of admedian stripes and a little nearer middle line a pair of somewhat curved dark brown flecks may sometimes be seen. *Abdomen* clothed with brownish hair. *Wings*: darkest and most conspicuous marks are two on and adjacent to costa; of these, one consists of a narrow, elongate, clove-brown mark reaching from costa to third longitudinal vein, and extending a little way on each side of cross-vein between first and third longitudinal veins; the second is a large, oblong, dark brown mark, with its inner margin somewhat concave and its outer margin more or less convex, situate midway between former mark and tip of wing and reaching from costa to upper branch of fourth longitudinal vein; tip of wing above upper branch of fourth longitudinal vein is occupied by a mouse-grey blotch; in distal fourth of wing are two mouse-grey quadrate blotches, of which one connects the mouse-grey borders of the two branches of the fourth longitudinal vein, while the other extends from lower branch of fourth to mouse-grey border of upper branch of fifth longitudinal vein; remaining markings consist of a sharply defined, mouse-grey, oval spot in centre of cell enclosed by branches of fifth longitudinal vein; a small, mouse-grey, quadrate blotch below cross-vein

connecting first and third longitudinal veins, and between third vein and upper branch of fourth; a large, pale mouse-grey, roughly quadrate blotch in proximal third of wing, extending from costa to fourth longitudinal vein (within limits of this blotch costa and other veins passing through it are darker); a similar but narrower blotch in centre of fifth longitudinal vein, with an ill-defined extension into anal angle, and a more or less well-defined, mouse-grey, oval spot on proximal side of lower branch of fifth longitudinal vein: fourth longitudinal vein bifurcating a little before middle of wing. *Halteres* sepia-coloured, proximal two-thirds of stalks cream-buff. *Legs* sepia-coloured, clothed with brownish hair; tibiae cream-buff at extreme base.

Uganda: type and four other specimens from the vicinity of the Mianga River, July 1903, "biters" (Colonel Sir David Bruce, C.B., R.A.M.C., F.R.S.).

The pattern and diffuse character of the wing-markings will serve to distinguish *Culicoides brucei* without difficulty from either the foregoing or following species.

Culicoides milnei, sp. n.

♀.—Length (3 specimens), exclusive of head, 1.5 to 1.6 mm.; length of wing 1.6 mm.

Colour of body (in dried specimens) dark brown, with a median grey patch on hinder portion of dorsum of thorax; head small, in dried specimens bent downwards as in foregoing species; wings, except basal sixth, which is cream-coloured and semihyaline, sepia-coloured, strongly iridescent, and marked with sharply defined small light spots; three cream-coloured transversely elongate spots on costa, separated from each other and from base of wing by quadrate sepia-coloured blotches, somewhat darker than remainder of wing; other light spots smaller, more rounded, and milky rather than cream-coloured.

Head: palpi dark brown; first joint of antennæ mummy-brown, flagellum isabella-coloured, clothed with yellowish hair, last five joints darker. *Thorax*: dorsum sparsely clothed with dark brown or brownish hair. *Abdomen* clothed with brownish hair. *Wings*: costal spots as follows:—1st, starting from costa above base of third longitudinal vein, crossing first and base of third longitudinal veins, surrounding anterior transverse vein, and extending to fourth longitudinal vein; 2nd on costa at point where third longitudinal vein enters it, extending downwards to about three-fourths of distance between costa and upper

branch of fourth longitudinal vein (greater part of this spot lies beyond third vein, but it also extends into space between tips of third and first longitudinal veins); 3rd spot on costa midway between second spot and tip of wing, its lower extremity somewhat closer to upper branch of fourth longitudinal vein than is lower extremity of second spot. Remaining spots as follows:—a group of four in distal fourth of wing, consisting of a pair of spots in middle of lower branch of fourth longitudinal vein (one spot above, the other below the branch, with which they are in contact), and a second pair (in which the spots are also on either side of the lower branch of the fourth longitudinal vein, but wider apart) between former pair and margin of wing; a rounded spot on hind margin, in cell enclosed by the branches of the fifth longitudinal vein, nearer upper branch than lower; two spots below fifth longitudinal vein, one close to vein some distance before it forks, the other on or near hind margin and a little further from base of wing; near anal angle may be a trace of a third and much smaller spot; lastly, there is a somewhat elongate spot, sometimes fairly large, extending from base of lower branch of fourth to that of upper branch of fifth longitudinal vein. Third longitudinal connected with first longitudinal vein by a cross-vein; *fourth longitudinal vein bifurcating in middle of wing*; distal portion of wing sparsely clothed with minute brownish hairs. *Halteres*: knobs large, sepia-coloured; stalks and tips of knobs cream buff. *Legs* sepia-coloured, tarsi, a narrow band at base of tibiae, and tips of hind tibiae cream-buff.

East Africa Protectorate: type and two other specimens from Nairobi, 5000 ft., 4. v. 1906 (*Dr. A. D. Milne*). According to the donor this species is prevalent at Nairobi in the rainy season, when it invades bedrooms at night. Writing on Aug. 21, 1906, Dr. Milne stated that these midges abound in the grass on the Athi Plains during the wet weather, and that, so far as he was aware, there was nothing to connect them with any disease of human beings or domestic animals.

Owing to the pattern of its wing-markings, *Culicoides milnei* cannot be confused with either of the foregoing species: as affording a further means of distinction, the position of the fork of the fourth longitudinal vein may also be noted.